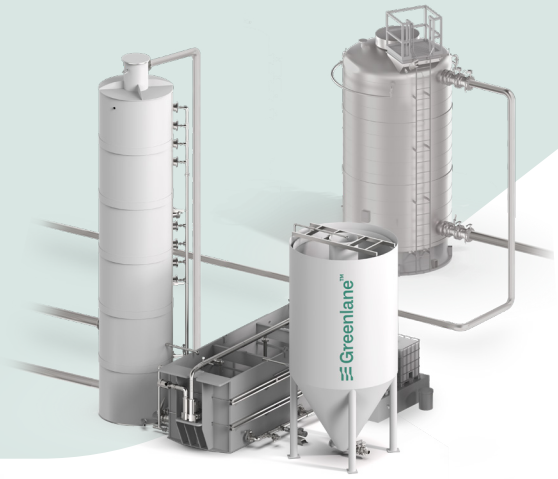
Greenlane™

Cascade H_2S

Biogas Desulfurization



Low-cost, reliable and regenerative bulk H_2S removal.

Cascade H_2S installation

No oxygen introduced, therefore avoiding risk of pipeline shut out.

Consistent, reliable, and fast startup as it does not rely on sensitive biological processes.

Simple, scalable, and easily integrated design is inherently cost efficient.

Standard models available to cover typical flows and H_2S levels.

Typical Flows (Nm^3/h)	Typical Flows (scfm)	Typical H_2S levels (ppmv)
250~2,500*	150~1,550*	up to 10,000

**Higher flow rates can be accommodated with multiple units.*

Please contact us to size your system. Cold weather packages available.

Cascade H_2S Advantages

Lowest Cost Solution

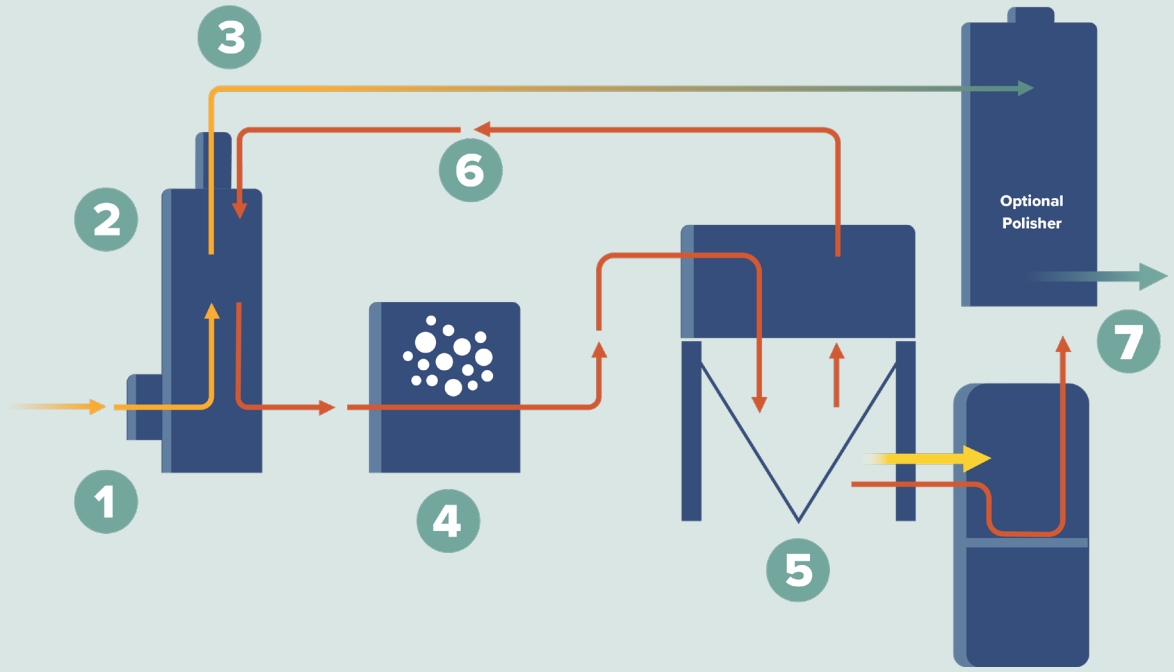
- **Prevents pipeline shut outs**
  Ensures upgrading systems can meet pipeline requirements for RNG, because no oxygen is added.
- **Performant and reliable**
  Highly effective bulk removal of H_2S, robust to variations of flow, H_2S concentration and ambient conditions. Quick startup and easy operation maximizes productivity.
- **Low costs**
  Designed specifically for biogas with cost-focused manufacturing. The regenerative process operates at low pressure allowing the use of cost-optimized materials, allowing for minimized CapEx and OpEx.

Alternative Technologies

- **Passive media systems**
  High operational costs from frequent media replacement and production interruptions.
- **Biological systems**
  Complex operation, slow startup times, and vulnerability to microbe mortality.
- **Oxygen injection**
  Risk of pipeline shut outs due to strict North American oxygen limits in RNG.

How Cascade H_2S works

1. Raw biogas is taken from the digester at low pressure and enters the scrubbing tower.
2. Biogas flows countercurrent to a regenerative chemical. No oxygen required.
3. Treated gas exits through the top of the scrubber with less than 100ppm H_2S content.
4. Sulfur rich solution is regenerated in a separate oxidation tank.
5. Regenerated solution flows from the oxidation tank to a mechanical separator removing elemental sulfur solids.
6. Clean, regenerated solution returns to the scrubbing tower in a continuous process.
7. Gas treated by Cascade H_2S is further treated to pipeline spec (≤ 4ppm) by the optional polisher.



The Greenlane Advantage

Solving the industry's most challenging problems for over 35 years with more than 355 systems supplied into 28 countries.

- 24/7/365 expert technical support
- Remote monitoring and management
- Priority spare parts incl. warehousing/logistics
- Proprietary software and equipment upgrades
- Commissioning, training & performance optimization
- Service contract options

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